Abstract

This reforming apparatus is provided with a raw material reforming unit including a heat source for generating heat when a fuel gas is burnt and adapted to reaction heat directly from the heat source, steam-reform a material, and produce a reformed gas containing hydrogen as a main component, a shift reaction unit for reducing by a water shift reaction the amount of CO contained in the reformed gas produced in the raw material reforming unit, a CO oxidation unit adapted to further reduce the amount of CO contained in the reformed gas after the process in the shift reaction unit, by oxidazing the same. These units are united as independent units. These raw material reforming unit, shift reaction unit and CO oxidation unit are arranged so that the shift reaction unit and the CO oxidation unit are indirectly heated by the heat transmitted from the heat source of the raw material reforming unit. The indirect heating is conducted by a method of heat transmission in solid by which heat is transmitted from the outer faces of the combustion chamber via an intermediate member; a method utilizing radiant heat, and a method utilizing heat of a combustion exhaust gas discharged from the combustion chamber. Since this reforming apparatus is provided with these three independent reaction sections united together, it can be miniaturized, and the heat from the heat source can be utilized effectively, and the controlling of temperature in the reaction sections can be done excellently.